

Compact Finite Difference Schemes for Fourth Order Parabolic Partial Differential Equations

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Abstract : Recently, in achieving highly efficient but at the same time highly accurate solutions has become the major target of numerical analyst community. The concept is termed as compact schemes and has gained great popularity and consequently, we construct compact schemes for fourth order parabolic differential equations used to study vibrations in structures. For the superiority of newly constructed schemes, we consider range of examples. We have achieved followings i.e. (a) numerical scheme utilizes minimum number of stencil points (which means new scheme is compact); (b) numerical scheme is highly accurate (which means new scheme is reliable) and (c) numerical scheme is highly efficient (which means new scheme is fast).

Keywords : central finite differences, compact schemes, Bernoulli's equations, finite differences

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